Cross line laser EK-117
Service manual

Suzhou Fukuda Laser Precision Instrument Co.,Ltd

Catalogue

1.0 Function ……（1）

2.0 Structure ……（2）

2.1Assembling ……（2）

2.2Pendulum set ……（2）

2.3 Underpan set ……（4）

2.4 Housing ……（6）

3.0 Check & Calibration……（8）

3.1 Accuracy……（8）

3.2 Adjustment……（8）

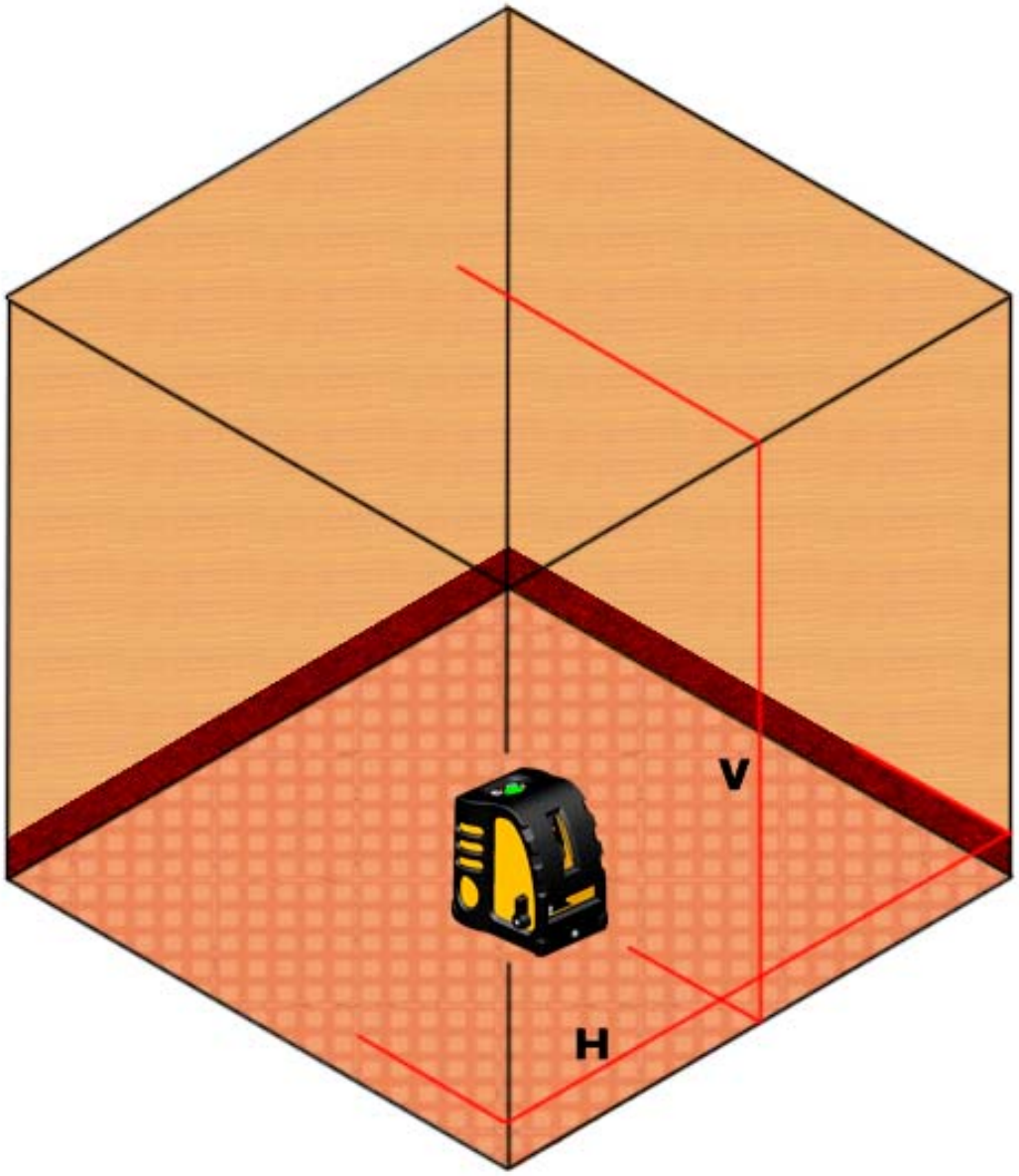
4.0 Malfunctions & Eliminations ……（10）

5.0Technology parameter……（13）

1.0 Function

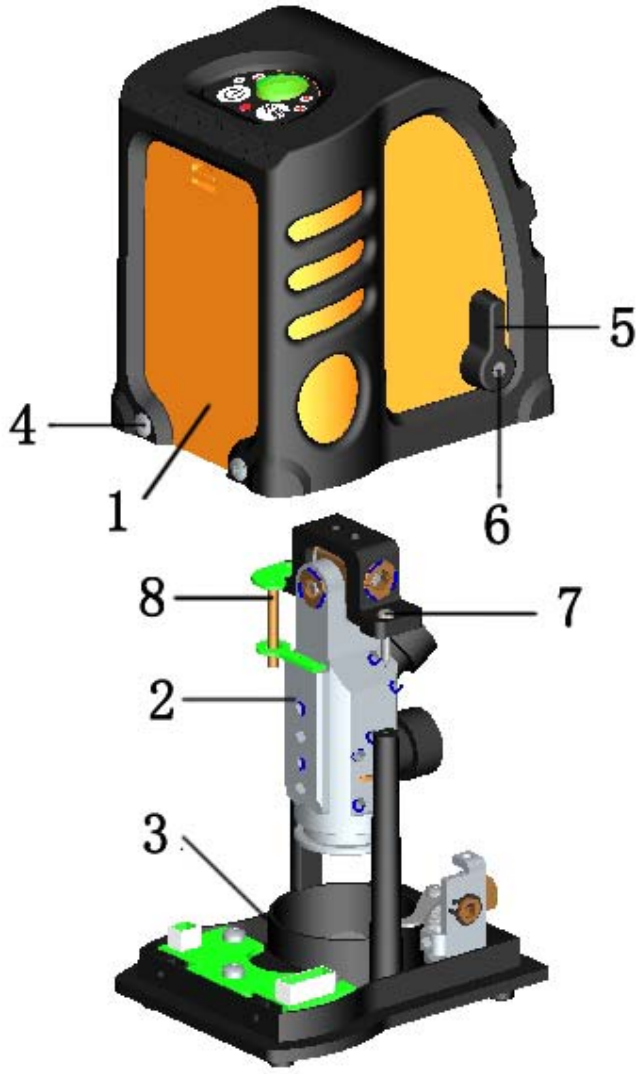
This instrument is equipped with the semiconductor diode with wavelength of 635nm,which the laser beam has supreme visibility.

The instrument can make one vertical plane, one horizontal plane and a down point. The two plane are emitted to wall by instrument which can form two laser line plump each other. Emitting directions of the laser depicted as follows:



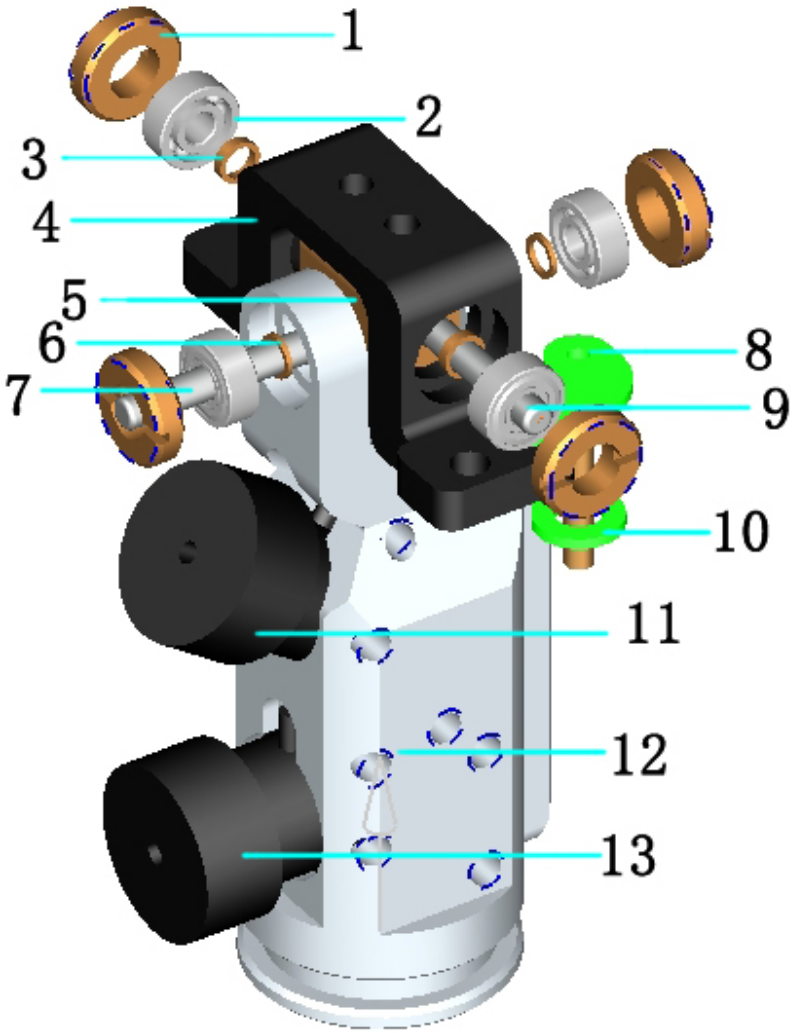
2.0 Structure

2.1 Assembling



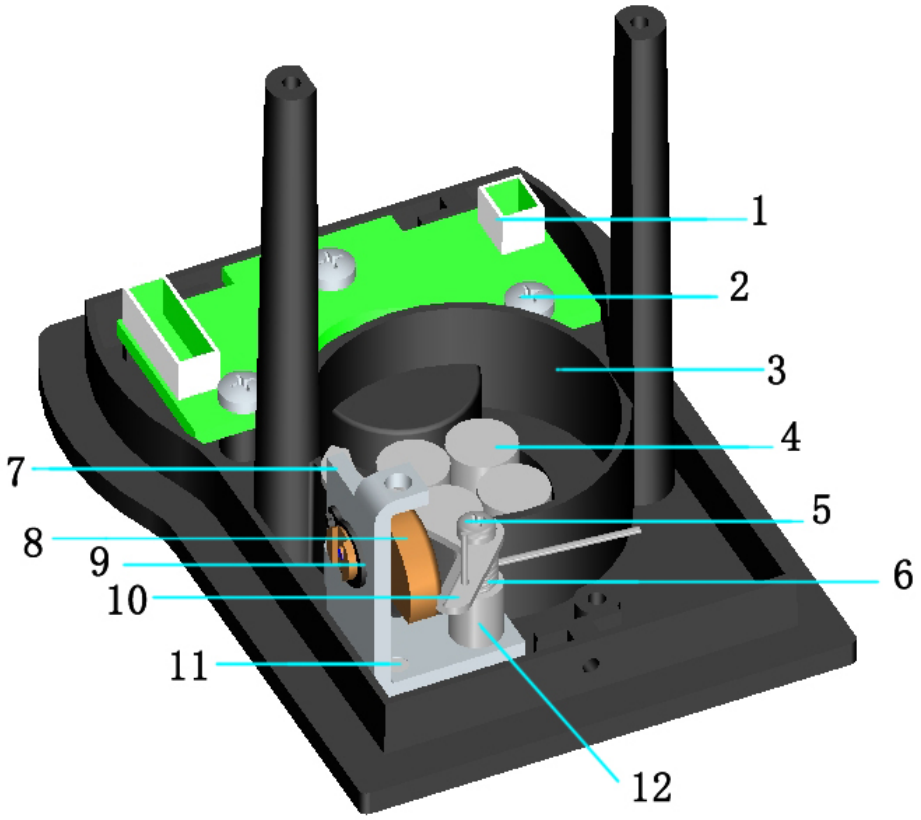
Serial	Code	Name	Quantity
1	FLG117-300	Housing	1
2	FLG117-100	Pendulum set	1
3	FLG117-200	Underpan set	1
4	GB/T846-1985	Stabilizing screw ST2.9×5.5	3
5	FLG117-011	Knob	1
6	GB819-85	Stabilizing screw M2X16	1
7	GB/T846-1985	Stabilizing screw ST2.2×13	1
8		Alarm pan	3

2.2 Pendulum set



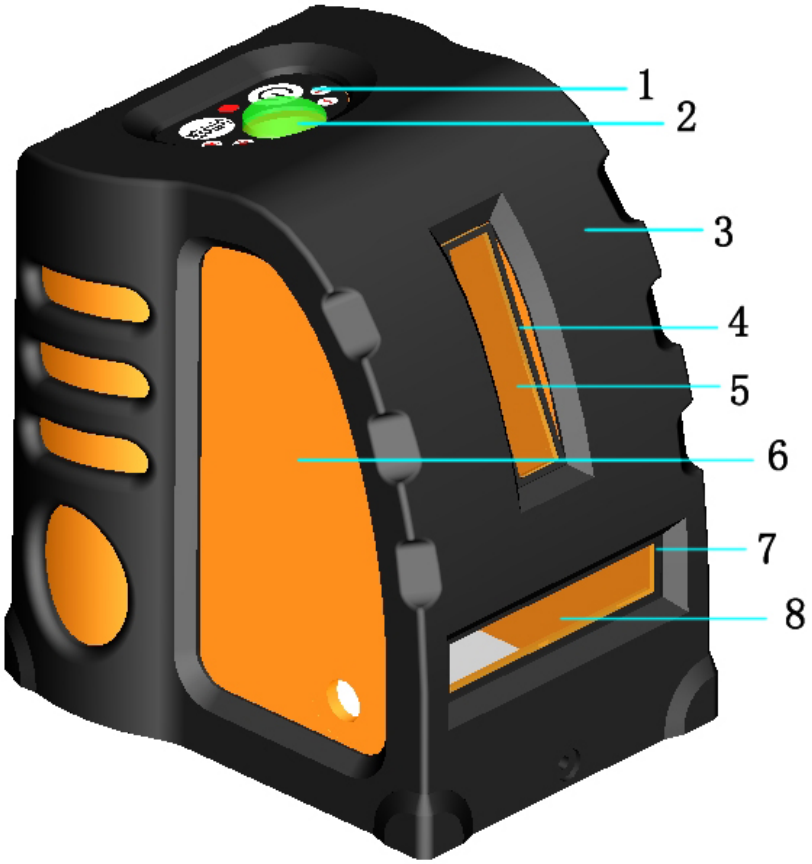
Serial	Code	Name	Quantity
1	LV288-033	Cover ring	4
2	693	ϕ3×ϕ8×3 Bearing	4
3	FLG117-010	Long cover	
4	FLG117-002	Settled device	
5	FLG117-003	Universal ring	1
6	FLG117-009	Short cover	1
7	GB309-84	pin 3X19.8G3	1
8	GB309-84	pin 3X23.8G3	1
9		Alarm pan	1
10		Alarm board	1
11	766	vertical light	1
12	FLG117-001	Pendulum	1
13	538K	horizontal light	1

2.3 Underpan set



Serial	Code	Name	Quantity
1		PCB	1
2	GB/T846-1985	Stabilizing screw ST2.9×5.5	3
3	FLG117-016	Underpan	1
4		Magneticф8×5	4
5		Stabilizing screw M2.5×8	1
6	LV188-110	Lock Spring	1
7	FLG117-006	Main Pole	1
8	FLG117-005	Spindle	
9	GB894.2-86	B Bar ring	1
10	FLG117-008	Lock device	1
11	GB819-85	Stabilizing screw M2.5X6	3
12	FLG117-007	centre rod	1

2.4 Housing



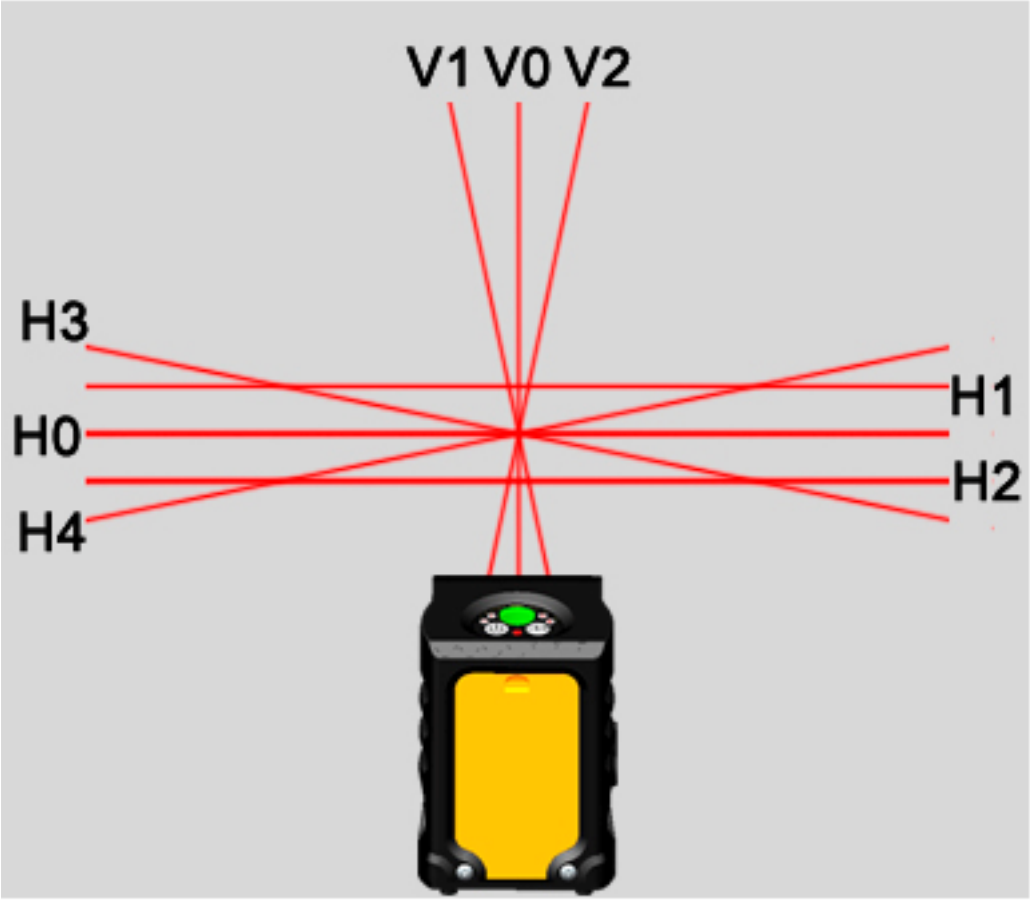
Serial	Code	Name	Quantity
1	FLG117-021	Keyboard	1
2		∮ 12mm bubble	1
3	FLG117-012	rubber overall	1
4	FLG117-019	Vertical glass Label	1
5	FLG117-017	Vertical glass	1
6	FLG117-015	Housing	1
7	FLG117-020	Horizontal glass Label	1
8	FLG117-018	Horizontal glass	1

3.0 Check & Calibration

3.1 Accuracy

horizontal line ±1mm/5m

vertical line ±1mm/5m



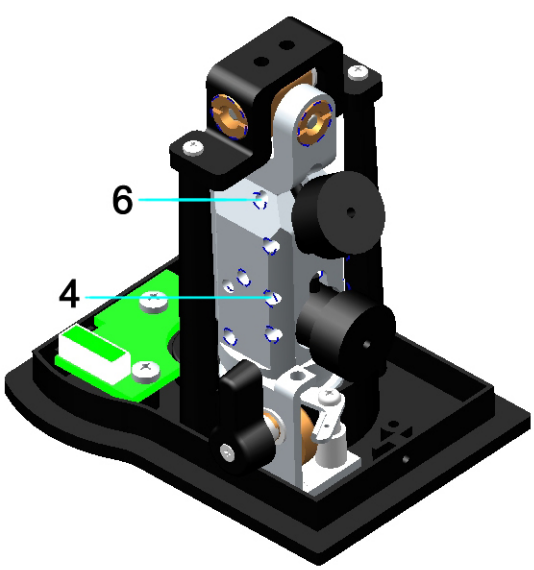
3-1

3.2 Adjustment

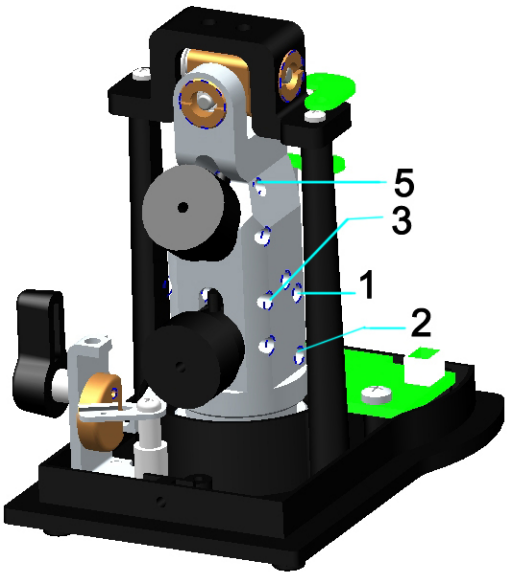
If there is the error, please turn to the following operation:

1. Aim the H laser diode needing adjustment to the Y+ of referring scale.

2. Twisting the screw according to actual situation of the horizontal line.



3-2



3-3

(1). If the adjusting line H is the H1, loosen the screw2, then tighten the screw 1（3—2、3—3）, If is the H2, loosen the screw1, then tighten the screw 2, repeat the operation until H line matches the referring H0 line。

(2). If the adjusting line H is the H3, loosen the screw3, then tighten the screw 4（3—2、3—3）, If is the H4, loosen the screw4, then tighten the screw 3, repeat the operation until H line matches the referring H0 line。

(3). If H laser departure from the referring VO line or the accuracy error exists between near point and far point, repeat the step1and step2 until the H line matches Ho line.

II.V laser calibration

1. Aim the H laser diode needing adjustment to the Y+ of referring scale.

2. Twisting the screw according to actual situation of the horizontal line.

(1). If which adjust line is the V1, loosen the screw5, then tighten the screw 5. (3—2、3—3). If which adjust line is the V2, loosen the screw6, then tighten the screw 5, repeat the operation until V line matches the referring VO line.

4.0 Malfunctions & Eliminations

4.1Failure in switching on the instrument

Causes:

⑴The voltage power of 3 section dry batteries is less than 3.

⑵Problem of power plug's(2 socket) connect with the main PCB

⑶Problem of panel plug's(9 socket)connect with the main PCB

Elimination:

⑴Renew the batteries

⑵Take off the Housing and reconnect the power plug with main PCB.

⑶Take off the housing then reconnect the panel plug with main PCB

Attention: If the there is a damage with panel or Main PCB, It may also cause the same problem(The rate is rare), In that case, Please contact manufacturer and look for more service.

4.2 No laser emit after instrument start to work

Cause:

⑴The slope of the instrument exceeds the leveling range and instrument

stays in self-alarm.

⑵The connection between diode and main PCB has some errors.

Elimination:

⑴Adjust the leg screw to make the instrument back into the leveling situation.

⑵Take off the housing then reconnect the diode to socket of PCB.

Attention: It will also cause the problem of no laser emitting(Possibility is rare) if there is a damage of PCB or diode. In that case, Please contact manufacturer and look for more service.

4.3Failure in leveling after the laser switch on.

Causes:

⑴There is a rustiness caused by oxygenation on bearing surface.

⑵Poor connection with the self-alarm ring due to the oxygenation of it's surface.

Elimination:

⑴Take off the housing, change the rusted bearing.

⑵Take off the housing, then take out the pendulum, clean the self-alarm ring with pure ethanol.

5.0 Specification

Line： one horizontal line; one vertical line;

Accuracy： ±1mm/5m

Self leveling range：Approx. ±3°

Working range: Approx. 10m(indoor).Approx. 50m(with detector)；

Laser wavelength： Laser Diode： 635nm×2

Working temperature： -10℃--+45℃(-14°F--+113°F)

Power： DC 3V (2section of 5# dry betteries)

Operation time : Approx.6 hours

Measurement： 85×67×102mm

Weight： 0.5kg